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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,783	07/31/2003	Eric J. Strang	241133US6YA CIP	7886
22850	7590	11/01/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			STEVENSON, ANDRE C	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,783

Applicant(s)

STRANG ET AL.

Examiner

Andre' C. Stevenson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 33-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 18-32 is/are rejected.
- 7) ☒ Claim(s) 11-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Foreign Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10630783, filed on July 07, 2003.

Election/Restriction

This office action is in response to the election of Group I claims 1 through 33, filed on 07/31/04. Currently claims 1 through 32 are pending and claims 33 and 42 have withdrawn with traverse, as per request in the above mention response.

Applicants Arguments;

Applicant argues that the restriction of claims 1 through 32 (Group I) should be withdrawn and grouped with claims 33 through 42, since the applicant believes that this would not assert serious burden on the examiner.

Applicant's arguments filed 07/31/04 have been fully considered but they are not persuasive. As stated in the previous office action, Group I and Group II are two distinctly different inventions. For this reason the examiner maintains the restriction.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-10, 20, 24-26 are rejected under 35 U.S.C. 102(b) as being unpatentable by Weaver et al (U.S. Pat 6780374 B2).

Weaver et al (U.S. Pat 6780374 B2), for **Claim #1, 20, 24, 25 and 29**, a thermal processing apparatus comprising: a heating assembly adapted to support a wafer for processing (**Fig. #4, column 7, line 64 through 67, column 8, line 1 through 17**); a cooling assembly located such that a thermal conductance region is provided between said heating assembly and said cooling assembly; and a device configured to adjust a thermal conductance of said thermal conductance region, (**Fig. 2, 4 and 5, item 565, 570, column 9, line 35 through 48**).

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With respect to **Claim #2**, the apparatus according to Claim 1, wherein said heating assembly comprises a heating body and an electrical resistive element attached to said heating body, is taught by Weaver et al (U.S. Pat 6780374 B2), (column 10, line 55 through 67, column 11, line 1 through 5).

Furthermore, **Claims #3**, the apparatus according to Claim 1, wherein said cooling assembly comprises a cooling body, a fluid path within said cooling body, and a feed device configured to feed cooling fluid along said fluid path, is taught by Weaver et al (U.S. Pat 6780374 B2), (column 9, line 19 through 48).

Considering now **Claim #4**, the apparatus according to Claim 1, wherein said device comprises a body having a recess configured to define at least a portion of a chamber configured to receive a working fluid, and a fluid injection system configured to inject a working fluid within said chamber, is taught by Weaver et al (U.S. Pat 6780374 B2), (Fig. 2a-e, column 9, line 19 through 48).

With respect to **Claim #5**, the apparatus according to Claim 4, wherein said device further comprises a control system configured to control said fluid injection system to achieve at least one of a predetermined density and a predetermined pressure of working fluid within said chamber, is taught by Weaver et al (U.S. Pat 6780374 B2), (Fig. 9, column 9, line 19 through 34).

Considering now **Claim #7**, the apparatus according to Claim 4, wherein said injection system includes a gas supply configured to inject helium gas within said chamber as the working fluid, Teflon and other suitable polymers, is taught by Weaver et al (U.S. Pat 6780374 B2), (column 13, line 11 through 29).

With respect to **Claim #8**, the apparatus according to Claim 7, wherein said injection system includes an additional gas supply configured to inject a second gas within said chamber as the working fluid, is taught by Weaver et al (U.S. Pat 6780374 B2), (column 14, line 28 through 45).

Furthermore, **Claim #9**, the apparatus according to Claim 4, wherein said device further comprises a vacuum pump configured to evacuate said chamber, is taught by Weaver et al (U.S. Pat 6780374 B2), (column 14, line 28 through 45).

Furthermore, **Claim #10**, the apparatus according to Claim 4, wherein said recess has an aperture, said aperture abutting said heating assembly to define said chamber, is taught by Weaver et al (U.S. Pat 6780374 B2), (column 10, line 55 through 67, column 11, line 1 through 5).

Considering now **Claim #26**, the apparatus according to Claim 24, wherein said device comprises a driving device configured to adjust a distance between said heating

assembly and said cooling assembly, is taught by Weaver et al (U.S. Pat 6780374 B2),
(column 3, line 21 through 35).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 18, 19, 21, 22, 24, 27 and 30, are rejected under 35 U.S.C. 103(a) as being unpatentable over Weaver et al (U.S. Pat 6780374 B2) as applied to claims 1-5, 7-10, 20, 24-26 above, and in view of Johnson et al (U.S. Pat. No.6740853).

Weaver et al (U.S. Pat 6780374 B2), discloses the claimed invention of a thermal processing apparatus comprising: a heating assembly adapted to support a wafer for processing; a cooling assembly located such that a thermal conductance region is provided between said heating assembly and said cooling assembly; and a device configured to adjust a thermal conductance of said thermal conductance region.

Weaver et al (U.S. Pat 6780374 B2) fails to teach claim #6, 21 and 30, wherein said device includes a pressure regulator, said control system being configured to control said pressure regulator and wherein said means for adjusting the thermal conductance of said thermal conductance region comprises a body having a recess

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configured to define at least a portion of a chamber configured to receive a working fluid, and means for adjusting at least one of a pressure and a density of working fluid present within said chamber. Also Weaver et al (U.S. Pat 6780374 B2) fails to teach Claim 18, 19, 22, 24, 27, 28, 31 and 32, wherein at least one of said heating assembly and said cooling assembly comprises at least one of quartz, alumina, sapphire, aluminum, carbon, silicon carbide, and silicon nitride.

Johnson et al (U.S. Pat. No.6740853) teaches with respect to **Claims #6, 21 and 30**, wherein said device includes a pressure regulator, said control system being configured to control said pressure regulator and wherein said means for adjusting the thermal conductance of said thermal conductance region comprises a body having a recess configured to define at least a portion of a chamber configured to receive a working fluid, and means for adjusting at least one of a pressure and a density of working fluid present within said chamber, (column 3 line 36 through 58). Johnson et al (U.S. Pat. No.6740853) also teaches with respect to Claims 18, 19, 22, 24, 27, 28, 31 and 32, wherein at least one of said heating assembly and said cooling assembly comprises at least one of quartz, alumina, sapphire, aluminum, carbon, silicon carbide, and silicon nitride (column 4 line 17 through 30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a required condition wherein said device includes a pressure regulator, said control system being configured to control said pressure

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regulator and wherein said means for adjusting the thermal conductance of said thermal conductance region comprises a body having a recess configured to define at least a portion of a chamber configured to receive a working fluid, and means for adjusting at least one of a pressure and a density of working fluid present within said chamber in the device of Weaver et al (U.S. Pat 6780374 B2), as taught by Johnson et al (U.S. Pat. No.6740853), since Johnson et al (U.S. Pat. No.6740853) states at column 3 line 36 through 58 that such a modification would allow the He gas delivery system to be zoned there by providing different amounts of He to different parts of the substrate in order to match a conduction profile of the substrate. Also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have wherein at least one of said heating assembly and said cooling assembly comprises at least one of quartz, alumina, sapphire, aluminum, carbon, silicon carbide, and silicon nitride in the device of Weaver et al (U.S. Pat 6780374 B2), as taught by Johnson et al (U.S. Pat. No.6740853), since Johnson et al (U.S. Pat. No.6740853) states at column 4 line 17 through 30 states that such a modification would allow the quartz plates, which are constructed to have features matching the heater elements, to be fused together; thus providing a hermetic seal to separate the processing environment from the gas over the conductor. In conclusion, this provides a seal that reliably accommodates the ultra-high temperatures of the heater.

Objected Claims

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Claims 11-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 11

- ✓ Recess has a platinum coating.

Claim 16

- ✓ Pedestal having a fourth conduit extending there through and configured to act as a feed line for said chamber.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866 – 217 – 9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre C. Stevenson whose telephone number is (571) 272 1683. The examiner can normally be reached on Monday through Friday from 8:00 am to 5:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on (571) 272 1679. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 1782. Also, the proceeding numbers can be used to fax information through the Right Fax system;

- **703 872 9306**

Andre C. Stevenson

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10/28/04


John F. Niebling
Supervisory Patent Examiner
Technology Center 2800